No. 640,677. Patented Jan. 2, 1900.

F. W. LIVERMORE.

PHOTOGRAPHIC CAMERA.

(Application filed Nov. 5, 1898.)

(No Model.)

Fig. 1.

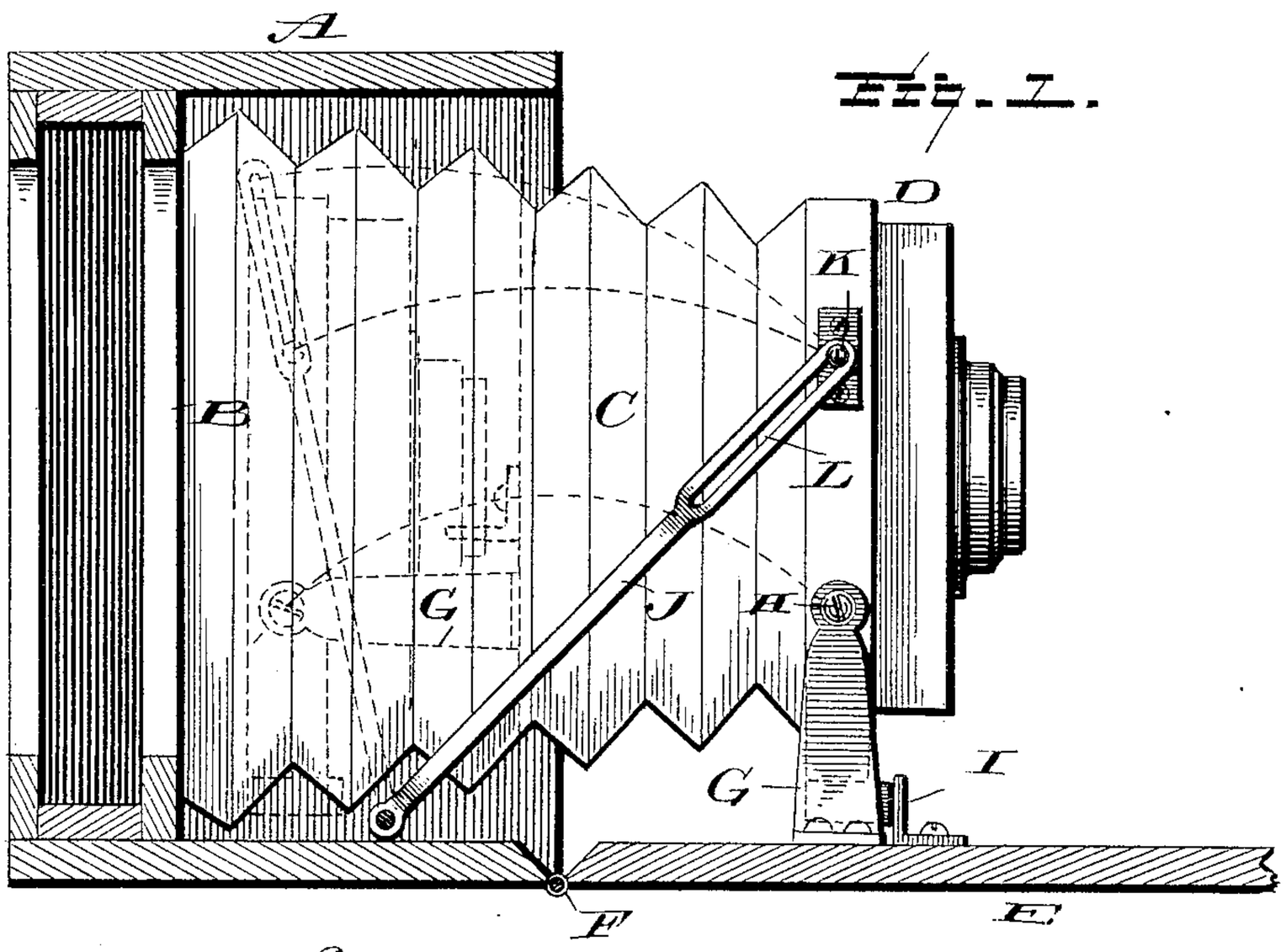
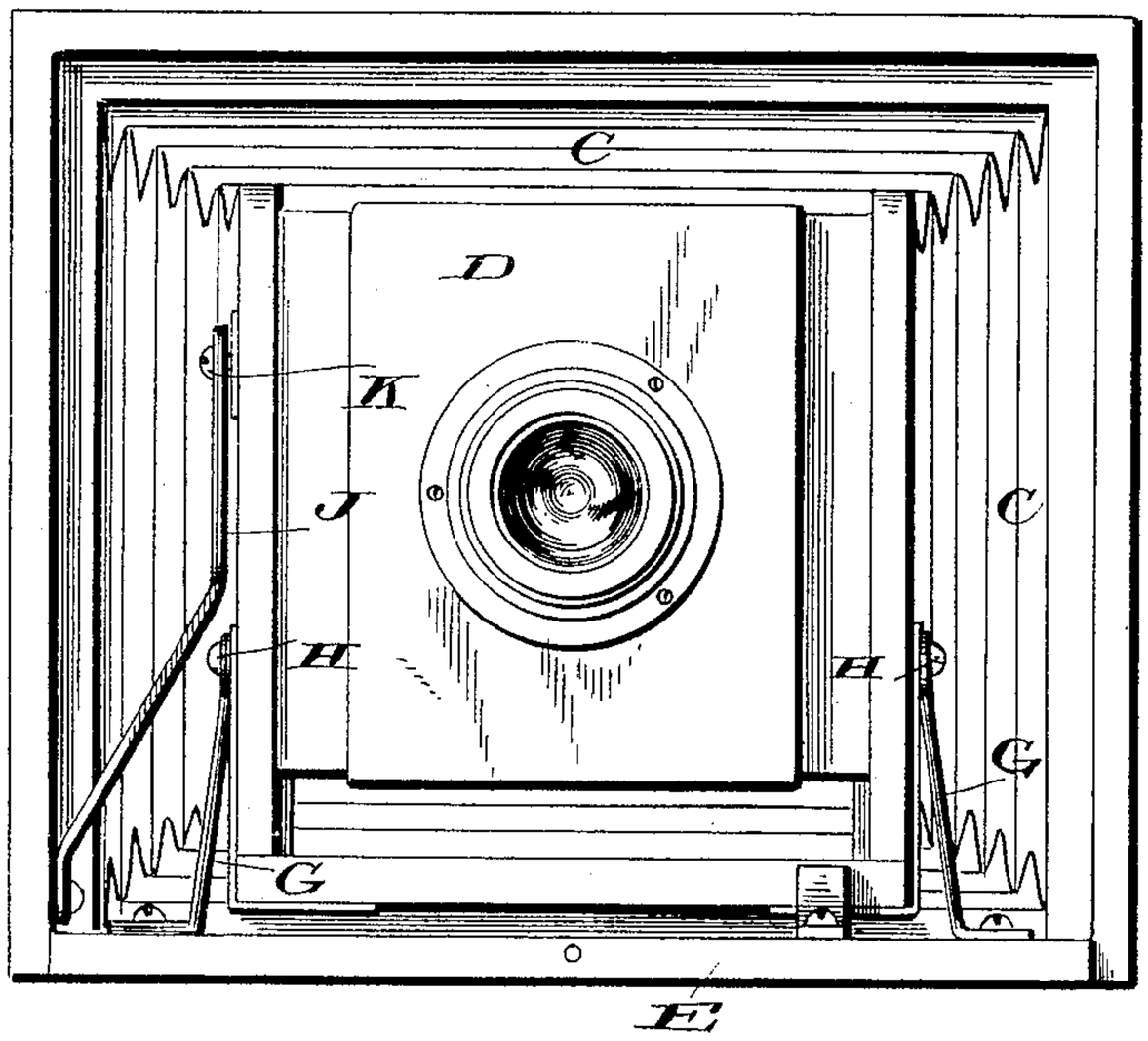


Fig. 2.



Witnesses.
L. C. Hills.
Melville W. Merrill

Inventor
Frederick W. Livermore,
by W. G. Hamand,
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UNITED STATES PATENT OFFICE.

FREDERICK W. LIVERMORE, OF NEW YORK, N. Y., ASSIGNOR OF ONE-HALF TO ALBERT D. DAVIS, OF YONKERS, NEW YORK.

PHOTOGRAPHIC CAMERA.

SPECIFICATION forming part of Letters Patent No. 640,677, dated January 2, 1900.

Application filed November 5, 1898. Serial No. 695,608. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK W. LIVERMORE, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Cameras; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to cameras; and it has for its object to so connect the lens-frame with the lid or cover of the box that the lid or cover will serve as a lever for throwing the lens forward in the operation of opening the lid or cover. I am thus enabled to dispense with the rack-and-pinion attachments or the sliding attachments heretofore employed for advancing the lens after the lid or cover has been opened.

To the accomplishment of the foregoing and such other objects as may be made to hereinafter appear I will now give a detailed description of an illustration of the means employed for the purpose and will then particularly define by the claims the parts constituting the invention, reference being had to the accompanying drawings, forming a part hereof, and in which—

Figure 1 is a side elevation with parts in section and showing in dotted lines the closed position of the parts, and Fig. 2 is a front elevation with the parts in the position shown in full lines in Fig. 1.

In the drawings the letter A designates the box of the camera, which may be of any approved pattern. Within the box is placed the frame B, to which is attached one end of the bellows C, the other end being attached to the lens-frame D. These parts may be of any well-known and approved pattern. The lens-frame D will be provided with a lens-holder of any approved pattern, which, together with other parts which may be employed to complete a camera, need not be illustrated, as my invention does not lie in the same.

The letter E designates the lid or cover, hinged to the box, as indicated at F in the drawings. This lid or cover is provided with the arms G, which at their upper ends are connected by pivots H to the lens-frame D. By thus connecting the lid or cover to the lens-frame the lid is made to serve the purpose of a lever by which the lens-frame may be moved out and in in the act of opening and closing the lid or cover. As the lid is opened it throws the lens-frame outward and forward in an upright position in the operation of opening the lid, thus dispensing with the employment of other means for advancing the lens after the lid or cover has been opened, as has been the practice in the past. The advantage of this improvement will be apparent to those skilled in the art, and especially so as by it the lens is immediately brought in position as the lid or cover is opened for immediate use without the delay necessary under other forms, where the lens must be brought in position after the lid or cover is opened.

For the purpose of limiting the movement of the lens-frame so as to insure the frame standing in an upright position when the lens is thrown forward I provide an appropriate stop suitably located, so that in the operation of opening the lid or cover the lens-frame when it reaches its proper limit will be caused to bear against this stop, and thus the frame will be prevented from tilting or assuming a position other than the vertical. A suitable stop for the purpose is illustrated by the letter I, which in the form illustrated is simply an angular piece of metal secured to the lid or cover E and having one member thereof positioned in front of the lower portion of the lens-frame, so that as the frame is brought to its proper limit the stop will prevent its further movement and cause the frame to stand in a vertical position. I do not confine myself, however, to any particular form or position of said stop, it only being necessary for the purposes of this feature of my invention that it be so formed and located that it will discharge the function stated.

The letter J designates a brace, which at one end is pivoted to the inside of the box and at the opposite end is connected to the side of the lens-frame by a headed pin or screw K, that end of the brace being formed with a slot L for the pin or screw to work in.

This brace is used in connection with the stop before described and serves to hold the frame steady in its vertical position when the lid has been opened and the lens advanced in the manner described.

Under my invention as described I am enabled to dispense with parts which have been heretofore employed for throwing the lens forward, and I am also enabled to bring the lens into position at the same time that the lid or cover is opened, so that the camera is ready for instant use immediately upon opening the lid or cover, and I make use of the lid or cover as the lever by which the lens is thrown forward and by which the lens is moved back into the box when not to be used.

I have illustrated and described what I consider to be the preferred means for accomplishing the purposes in view; but I do not limit myself to the particular construction, as changes may be made therein without departing from the essential features of my invention.

Having described my invention and set forth its merits, what I claim is—

1. In a folding camera, the combination of the lens-frame, the lid or cover, and a connection between it and the lens-frame, to convert the lid or cover into a lever for throwing forward the lens to a fixed position in the operation of opening the lid or cover substantially as specified.

2. In a folding camera, the combination of the lens-frame, the lid or cover, a connection between it and the lens-frame to convert the lid or cover into a lever for throwing forward the lens to a fixed position in the operation of opening the lid or cover, and a stop to limit the movement of the lens-frame to an upright position substantially as and for the purposes described.

3. In a camera, the combination of the lens-frame, the lid or cover, a connection between it and the lens-frame to convert the lid or cover into a lever for throwing forward the lens to a fixed position in the operation of opening the lid or cover, a stop to limit the movement of the lens-frame to an upright position, and a brace for the lens-frame substantially as and for the purposes described.

In testimony whereof I affix my signature in presence of two witnesses.

FREDERICK W. LIVERMORE.

Witnesses:

SAM SEATON SPALDING,

ALBERT D. DAVIS.